9 BLOOD DETECTION

9.1 Objectives

9.1.1 To develop a basic understanding of the theory and procedures for the combined PTMB color test.

9.1.2 To become acquainted with the sensitivity and stability of the reagents.

9.1.3 To determine the specificity and limitations of the various chemicals.

9.1.4 To acquire a thorough understanding of the use of controls.

9.2 Methods of Instruction

9.2.1 Lecture and Discussion

9.2.2 Literature

9.2.2.1 Cox, M. "A Study of the Sensitivity and Specificity of Four Presumptive Test for Blood", JFS Vol.36: 1503-1511 (Sept. 1999).

9.2.2.2 Culliford, Bryan, The Examination and Typing of Bloodstains in the Crime Laboratory, U.S. Department of Justice, U.S. Government Printing Office, Washington DC (1971). [Handout]

9.2.2.3 Gaensslen, R.E., Sourcebook in Forensic Serology, Immunology and Biochemistry, U.S. Department of Justice, U.S. Government Printing Office, Washington, DC (1983).

9.2.2.4 Garner, D.D., Cano, K. M., Peimer, R.S., and Yeshion, T.E., "An Evaluation of Tetramethylbenzidine as a Presumptive Test for Blood," JFS, Vol. 21:816-821 (1976).

9.2.2.5 Kirk, Paul L., Crime Investigation, John Wiley and Sons, New York, NY (1974).

9.2.2.6 Saferstein, R., Ed., Forensic Science Handbook, Prentice-Hall, Inc., Englewood Cliffs, NJ (1982).

9.2.2.7 Forensic Biology Training Manual, Virginia Division of Forensic Science.

9.2.3 Student Exercises

9.2.3.1 Perform the combined PTMB color test on bloodstains of varying strengths (1:10 through 1:10,000 dilution), 5 bloodstains of varying ages, and a minimum of 20 bloodstains subjected to various contaminants such as super glue, fingerprint powder, ninhydrin, redwop powder (rhodamine base), bleach, soap, motor oil, luminal, mold, and environmental conditions (heat, moisture, heat and moisture combined, decomposition, etc…). Test substances reported to give false positives.

9.2.3.2 Observe the specificity and sensitivity of the test performed. Compare this information to the literature.

9.2.3.3 Instruction by and observation of qualified examiners performing the test

9.2.3.4 Test unknown stains as provided by training coordinator or designate.

9.2.3.5 Read applicable literature.

9.3 Evaluation

9.3.1 Knowledge

9.3.1.1 Review of notes in training notebook by training coordinator.

9.3.1.2 Oral and practical examination.

9.3.2 Skills

9.3.2.1 Observation by training coordinator or designate

9.3.2.2 Satisfactory performance on training exercises.

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